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January 29, 2010

Ms. Susan C. Svirsky
U.S. Environmental Protection Agency
c/o Weston Solutions, Inc.
10 Lyman Street
Pittsfield, MA 01201

Re: GE-Pittsfield/Housatonic River Site
Rest of River (GECD850)
Dispute Resolution on Certain Conditions in EPA's Conditional Approval Letter for GE's Work Plan for Evaluation of Additional Remedial Alternatives

Dear Ms. Svirsky:

Pursuant to Special Condition II.N.1 of the Reissued RCRA Corrective Action Permit (the Permit) issued by the U.S. Environmental Protection Agency (EPA) to the General Electric Company (GE) in 2000 (and reissued in December 2007), GE hereby notifies EPA of GE's objections to certain conditions and directives set forth in EPA's letter of January 15, 2010, providing conditional approval of GE's August 31, 2009 *Work Plan for Evaluation of Additional Remedial Alternatives* (Work Plan) for the Rest of River portion of the Housatonic River.

Specifically, by this notice, GE is invoking dispute resolution under Special Condition II.N.1 of the Permit with respect to Conditions 20 and 22 in EPA's January 15, 2010 letter, which relate to Appendix C of the Work Plan and contain directives for GE's evaluation of an additional sediment remedial alternative identified by EPA, known as alternative SED 9. Those conditions and directives, as well as GE's objections to them and the bases for GE's position, are set forth in the attached Statement of Position.

In addition to the specific conditions as to which GE is invoking dispute resolution at this time, GE disagrees with a number of the other conditions and statements in EPA's January 15, 2010 letter. GE expressly reserves all its rights to contest any of the conditions, directives, and statements in EPA's January 15, 2010 letter – including GE's right, pursuant to Special Condition II.N.5 of the Permit, to raise any of its objections in a challenge to EPA's modification of the Permit to select corrective measures for the Rest of River, as well as any other rights that GE has under the Permit, the Consent Decree, or applicable law to raise such objections in the future.

As you know, the first stage of dispute resolution under the Permit involves discussions between the parties to attempt to resolve the disputes. GE looks forward to having such discussions with EPA during the next two weeks in an effort to reach a mutually agreeable resolution of the disputed issues identified in the attached Statement.

Very truly yours,

Andrew T. Silfer, P.E.
GE Project Coordinator

Attachment

cc: Dean Tagliaferro, EPA
Timothy Conway, EPA
Holly Inglis, EPA
Rose Howell, EPA (without attachment)
Michael Gorski, MDEP
Eva Tor, MDEP
Jane Rothchild, MDEP
John Ziegler, MDEP
Dale Young, MA EOEEA
Susan Peterson, CDEP
Thomas Hill, GE
Michael Carroll, GE
Roderic McLaren, GE
Kevin Mooney, GE
James Bieke, Goodwin Procter
Jeffrey Porter, Mintz Levin
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GENERAL ELECTRIC'S STATEMENT OF POSITION ON OBJECTIONS TO CERTAIN CONDITIONS IN EPA'S CONDITIONAL APPROVAL LETTER FOR GE'S WORK PLAN FOR EVALUATION OF ADDITIONAL REMEDIAL ALTERNATIVES

January 29, 2010

INTRODUCTION

On August 31, 2009, the General Electric Company (GE) submitted to the U.S. Environmental Protection Agency (EPA) a *Work Plan for Evaluation of Additional Remedial Alternatives* (Work Plan) as an addendum to GE's February 2007 Corrective Measures Study (CMS) Proposal for the Rest of River area of the Housatonic River, which was submitted pursuant to the Resource Conservation and Recovery Act (RCRA) Corrective Action Permit issued by EPA to GE on July 18, 2000 and reissued on December 5, 2007 (the Permit). That Work Plan called for the evaluation of certain additional remedial alternatives that were not evaluated in GE's March 2008 CMS Report. Those additional alternatives were: (a) a combination of additional sediment and floodplain remediation alternatives referred to jointly in the Work Plan as the Ecologically Sensitive Alternative and separately as alternatives SED 10 and FP 9; and (b) additional sediment and floodplain remediation alternatives that EPA had requested GE to evaluate, referred to in the Work Plan as alternatives SED 9 and FP 8, respectively.

EPA had agreed to the evaluation of the alternative combination now known as SED 10/FP 9 in correspondence dated February 5, 2009, but did not initially request GE to evaluate the new sediment alternative developed by EPA until a letter to GE dated April 1, 2009, where it explained that that alternative would use "wet excavation" techniques (i.e., removal through the water column) to remove PCB-containing sediments and riverbank soils in approximately the first seven miles of the Rest of River (Reaches 5A and 5B). GE subsequently submitted a draft work plan on May 1, 2009, presenting its proposal to evaluate the alternative combination now known as SED 10/FP 9 and the new sediment alternative requested by EPA. In July 2009, EPA provided further details regarding the new sediment alternative that it wanted GE to evaluate, including the assumption that, in Reaches 5A and 5B, that alternative would involve

wet excavation by equipment operating within the river channel (either on the river bottom itself or from barges, depending on river conditions). At the same time, EPA also identified (for the first time) and described the new floodplain alternative that it wanted GE to evaluate.

GE's Work Plan described the additional alternatives and GE's proposed methodology for evaluating them; and it explained that that evaluation, together with a revised evaluation of the previously identified alternatives, would be presented in a revised CMS Report. The Work Plan noted that, to assess EPA's new alternative SED 9 using EPA's model, it would be necessary to revise certain inputs – notably, dredging production rates and PCB release rates during dredging (resuspension rates) – to reflect the remedial scenario and assumed dredging methods specified by EPA for Reaches 5A and 5B. Specifically, GE explained that, since SED 9 would involve sediment excavation in Reach 5A using heavy equipment operating in the river channel while the river water was flowing, the resulting production rates would be slower and the PCB resuspension rates would be higher than those that had previously been agreed upon for mechanical dredging from barges in Reach 5C and other downstream areas. In addition, GE explained that the production rate in both Reaches 5A and 5B should be reduced to account for higher velocity flows in those reaches. GE's proposed revised inputs for these parameters were presented in Appendix C to the Work Plan.

On January 15, 2010, EPA issued its conditional approval letter for the Work Plan. That letter included, among other conditions, conditions relating to Appendix C of the Work Plan. In Condition #20, EPA rejected GE's proposal to use lower production rates for implementation of SED 9 in Reaches 5A and 5B and directed GE to use the same production rate used for mechanical dredging in further downstream reaches. In Condition #22, EPA rejected GE's proposal to use higher PCB resuspension rates for implementation of SED 9 in Reach 5A and directed GE to use the same resuspension rate used for mechanical dredging from barges.

Pursuant to Special Condition II.N.1 of the Permit, GE is invoking dispute resolution on these conditions in EPA's letter. For the reasons set forth below, those requirements are arbitrary and unjustified.

GE expressly reserves all of its arguments and all of its rights to contest these or any of the other conditions, directives, and statements in EPA's January 15, 2010 letter – including its right, pursuant to Special Condition II.N.5 of the Permit, to raise any of its objections in a challenge to EPA's modification of the Permit to select corrective measures for the Rest of River, as well as any other rights that GE has under the Permit, the CD, or applicable law to raise such objections in the future.

GE POSITION

1. EPA's Directive To Use the Same Production Rate for SED 9 in Reaches 5A and 5B as Is Used for Mechanical Dredging Further Downstream Is Unsupported, Arbitrary, and Unrealistic.

As stated in the CMS Report, an average per-crew production rate of 275 cubic yards per day (cy/d) was selected for mechanical dredging performed "in the wet." This average daily rate is equivalent to 54,450 cy per year, based on an assumed schedule of 198 working days per year (i.e., 22 days per month between March and November). This rate was based on dredging from a barge in Reach 5C and downstream, with a series of barges used to ferry excavated and backfill materials to and from the associated staging areas. Such an approach was selected for these reaches for purposes of the evaluations in the CMS, because the relatively deep water (i.e., greater than 5 feet during normal flow conditions), improved channel access, few channel constrictions/obstructions, and increased barge mobility in those reaches make dredging using barges feasible.

However, as discussed in Appendix C to the Work Plan, average water depths in Reach 5A (i.e., typically less than 3 to 4 feet) make the use of barges infeasible in that reach. Therefore, consistent with EPA's instructions for SED 9, GE assumed that sediment excavation in Reach 5A would be performed with heavy conventional equipment (e.g., excavators, off-road trucks) operating on the bottom of the river channel while the river was flowing. To facilitate such operations, access ramps providing entry to the channel would be constructed (along with access roads to tie into existing roadways) and temporary roads would be constructed along the channel bottom.

Because of the difficulties and risks associated with operating heavy equipment in the river with the river water flowing, vehicle speeds and overall progress would be slowed significantly, and the cycle time required for the removal of individual truck loads of material would be increased compared to movement on access roads on the top of the banks. For example, the use of temporary roads would limit the number of transport vehicles in the river channel to just one truck at a time, with additional vehicles staged and waiting for passage through the channel to be clear. Further, without the construction of additional access roads and/or turnarounds, each truck would have to travel in reverse for one leg of the round trip along the bottom of the river. Combined, these limiting factors would increase the handling/transport time associated with each truck load, thereby reducing the overall number of loads of excavated/backfill materials (per day) relative to mechanical dredging from a barge floating on the river surface. In light of these and other factors, GE estimated that the overall average production rate of mechanical dredging in the wet from the channel bottom in Reach 5A (including the time necessary for construction and removal of the supporting temporary roads) would be approximately 30-35% slower than the estimated production rate of mechanical dredging in the wet from barges in the downstream reaches.

In addition, GE explained that Reach 5A, as well as Reach 5B (where GE assumed that mechanical removal would be performed using barge-mounted equipment), would be expected to have higher water velocities than further downstream reaches, which would lead to additional downtime. Specifically, GE noted that silt curtains, which would be anticipated to be used to help control resuspension under SED 9, have diminished effectiveness and stability in higher water velocities and are not recommended for use in water velocities greater than 1.5 feet per second (fps) (Francingues and Palermo, 2005). Thus, during such conditions, dredging operations may have to shut down to avoid uncontrolled resuspension. Further, GE determined the average number of days between March and November with anticipated high flows that could lead to suspension of wet excavation (either because of flows greater than 1.5 fps and/or because of flows at or above the 2-year flood) (Figure C-1 of Appendix C), and estimated that on an overall reach-wide basis, there would be around 30 such days in Reach 5A and around 15 in Reach 5B. By contrast, the assumed schedule of 198 working days per year for more downstream reaches assumed no or a lesser number of flow-related shutdown days.

Based on these factors, GE proposed to use the following average daily production rates for implementation of SED 9: 165 cy/d for Reach 5A (considering both the reduced efficiency in performing the mechanical dredging from within the channel and the likely increased downtime due to high water velocities); and 255 cy/d for Reach 5B (considering the likely increased downtime due to high water velocities).

EPA rejected these proposals. In Condition #20 of its January 15, 2010 letter, EPA stated that a production rate of 275 cy/d (equivalent to 54,450 cy per year) is achievable for both Reaches 5A and 5B. EPA failed to provide any information, rationale, or details supporting this conclusion or selection of this production rate for these reaches. In particular, it provided no response whatsoever to GE's demonstration in Appendix C that, due to the different river conditions in Reach 5A and the resulting difference in the dredging method (i.e., construction and use of temporary roads in the river channel and excavation using conventional equipment operating on the channel bottom while the river is flowing), production rates in Reach 5A would necessarily be slower than that assumed for mechanical dredging from barges in the downstream reaches. Instead, EPA simply asserted, without providing any support, that the same production rate used for the latter could be achieved in Reach 5A for SED 9, and it directed GE to use that rate. That directive was entirely arbitrary.

In addition, EPA did not provide a supportable rationale for rejecting GE's further proposal to slightly reduce the production rates in both Reaches 5A and 5B (compared to Reach 5C and downstream) to account for the likely increased downtime due to higher water velocities. EPA did assert, in Condition #21, that the Francingues and Palermo (2005) reference cited by GE with reference to silt curtains "does not state that silt curtains are not recommended for velocities higher than 1.5 ft/sec," but "states that currents greater than 1 to 1-½ knots are problematic, . . . and this current velocity is the accepted industry standard for conventional silt curtain deployment, effectively limiting deployment, except on a case-by-case basis." Since 1 knot equals 1.688 ft/sec (which is close to 1.5 ft/sec) and since this paper concludes that "the 1 to 1-½ knot value appears to be an industry standard," this reference generally supports GE's conclusion about the limitations on the use of silt curtains under high velocity flows. In any event, GE's point went beyond the precise number recommended as a limiting condition for silt curtain use. GE's more general point was that Reaches 5A and 5B have

higher flow velocities than downstream reaches and that these conditions are likely to limit silt curtain use and the ability to work in the river on some days, thus requiring a modification in the production rate. EPA ignored that more general point without providing any reason for rejecting GE's proposed flow-based adjustments to the production rates.

EPA also stated in Condition #20 that, in the alternative, GE may consider a lower average production rate for SED 9 but only if the construction schedule is increased from 198 to 264 days (66 additional days), with work assumed to occur on weekends and throughout the winter months, so that the annual production rate still reaches 54,450 cy per year. However, making such an assumption for SED 9 would be inconsistent with the EPA-approved schedule assumption of 198 days/year for all of the other sediment remedial alternatives, and in direct conflict with EPA's often-stated mandate requirement that all of the alternatives be evaluated objectively on an equal footing. In any event, it is unreasonable to assume for purposes of the CMS that a multi-year "in the wet" dredging project could be performed consistently during the winter months.

For these reasons, EPA's directive to use the same annual production rate for implementation of SED 9 in Reaches 5A and 5B as is used for dredging from barges in further downstream reaches was arbitrary and unjustified. GE's proposed revised rates are reasonable and should have been approved.

2. EPA's Directive To Use the Same PCB Resuspension Rate for Excavation Using Conventional Equipment on the Bottom of the Flowing River as Is Used for Mechanical Dredging from a Barge Is Unsupported, Arbitrary, and Unrealistic.

The rate of resuspension of PCBs during dredging is generally related to the type of equipment used, including both dredging and containment equipment. In consideration of the range of resuspension estimates provided in the literature and professional judgment based on experience at other sites, resuspension rates of 1% of the dredged sediment PCB mass for hydraulic dredging and 2% for mechanical dredging were selected and approved by EPA for the model simulations of dredging presented in the CMS Report. The latter estimate was based on cases studies where work was performed from barge-mounted mechanical dredging equipment.

In Appendix C to the Work Plan, GE proposed the use of higher PCB resuspension rates for simulation of sediment removal in Reach 5A under SED 9. The primary reason for proposing such higher resuspension rates was that, to meet EPA's specifications for SED 9, it was assumed that sediment removal in Reach 5A would be performed using heavy conventional equipment (e.g., excavators, trucks) operating on the bottom of the channel while the river is flowing. Because of the potential disturbances of the river channel bottom associated with such heavy excavation equipment and trucks operating in a flowing river, GE concluded that the PCB resuspension rate would be higher than the previously approved release rate of 2% for mechanical dredging in the wet from barges.

In Appendix C, GE recognized that there is uncertainty associated with estimating the resuspension rate associated with sediment excavation where the equipment is directly placed on and operated from the river bottom. Indeed, to our knowledge, there are no data from sites where such removal techniques were used. Thus, GE proposed specifying the resuspension rate in the model for SED 9 in Reach 5A as a range to capture this uncertainty. Specifically, GE proposed a range of 5% to 9%, based on values from NRC (2001) (cited by EPA, 2005), which are from past experience in dredging projects (both navigational and environmental).

In Condition #22 of its January 15, 2009 letter, EPA rejected GE's proposal and directed GE to use, in the evaluation of SED 9, the same resuspension rate previously approved for mechanical dredging from a barge. EPA noted that the higher release rates quoted by GE came from studies that included navigational dredging projects (which included things like barge overflow and "fall-back," which would not be allowed during environmental dredging), and it cited more recent papers on environmental dredging. However, EPA did not address GE's main point – i.e., that excavation performed by heavy excavation equipment and trucks operating on the bottom of a flowing river would cause a higher resuspension rate than barge-mounted equipment.

EPA's conclusion was arbitrary and unrealistic. Although there are no data on the resuspension that would occur using a technique such as that assumed for sediment excavation in Reach 5A under SED 9, it is clear that that method would result in a higher resuspension rate than the dredging from a barge. For example, the movement of trucks and other equipment

into and out of the flowing river and along the river bottom would result in mobilization of sediment beyond that which would occur during the excavation process itself, and the combined effects of such equipment movement and the excavation activities within the flowing river channel would result in resuspension well beyond that which would occur during use of barge-mounted equipment. Moreover, situations where river flows rise rapidly (as is the case for the Housatonic) and equipment is located within the river channel and exposed to increased current velocities can result in flow constrictions and increased sediment erosion due to locally elevated velocities beneath and adjacent to the equipment. These types of increased sediment mobilization due to operation of heavy equipment on the river bottom may be considered analogous to processes such as barge overflow and "fall-back," which were mentioned by EPA as associated with navigational dredging using barge-mounted equipment.

In short, it was arbitrary and unreasonable for EPA to ignore the differences between environmental mechanical dredging from a barge and the type of dredging from the riverbed that EPA has required for SED 9 in Reach 5A, and to simply direct use of the same resuspension rate set for the former without addressing those differences. Given the high probability that the PCB resuspension resulting from the excavation activities and the movement of excavators and trucks in the bottom of a flowing river channel would exceed that resulting from use of barge-mounted equipment, and given the absence of data on exactly how much greater that resuspension would be, GE believes that the most reasonable approach would be to use a range of values as a sensitivity analysis in the model, as it proposed.

CONCLUSION

For the reasons given above, EPA should withdraw Comments #20 and #22.*

* In addition to these conditions, EPA directed GE, in Condition #24 of its January 15, 2010 letter, to assume that, for SED 9, the removal of sediments from the backwaters, Woods Pond, and the Reach 7 and 8 impoundments would be performed concurrently with removal activities in Reach 5, that the capping activities in those downstream reaches would be deferred until after all sediment removal activities are completed, and that the removal depth in those downstream reaches must be increased to account for the estimated sedimentation during that interim period. Although EPA had reviewed GE's proposed approach for evaluating this alternative in GE's May 1, 2009 draft work plan and provided GE with further explanation of the details and assumptions for this alternative in July 2009, EPA never specified this unusual construction sequencing until its January 15, 2010 letter. The model remediation code previously developed by GE (and approved by EPA) as a modification to EPA's model was not designed to simulate this unusual sequencing of removal and cap placement. As a result, additional model code testing and development of model input files will be necessary, which will take additional

REFERENCES

EPA. 2005. *Contaminated Sediment Remediation Guidance for Hazardous Waste Sites.* U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. Washington, DC. EPA-540-R-05-012. December 2005.

Francingues, N.R., and Palermo, M. R. 2005. "Silt Curtains As a Dredging Project Management Practice." DOER Technical Notes Collection (ERDC TN-DOER-E21). U.S. Army Engineer Research and Development Center. Vicksburg, MS.

National Research Council (NRC). 2001. *A Risk-Management Strategy for PCB-Contaminated Sediments.* The National Academies Press., Washington, D.C.

time. Following completion of these activities, GE will advise EPA if the requirement to model SED 9 under this modified sequencing approach would affect the timing for submittal of the revised CMS Report.